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Abstract

Apprcximately 400 low-inccme black sixth-grade children underwent a two-step training process to help understand fate-ccntrcl. After a week cf intensive achievement-motivation training, nine experimental teachers and a research team cccperatively designed a prcgram to develop in their students the realization that their behavior in relaticn tc gcal attainment is internal to, and contrcllable by, themselves. Four training units were designed and implemented in the classrccm: 1) My Real Self; 2) Stcries of Achievement; 3) The Spelling Game, and 4) The Origin-Manual. The training prcduced highly significant increases in: the use cf achievement-wcrds, need for achievement, verbal expressiveness, goal realism, and academic achievement. A ccntrcl design was used to ensure the validity cf the findings. (EM)

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CAN MOTIVES OF LOW INCOME BLACK CHILDREN BE CHANGED?

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Abstract

A two-step training process was used to train about 400 low income, black, 6th grade, children to be Origins. After a week of intensive achievement-motivation and Origin-training, the 9 experimental teachers worked in conjunction with the research team to work out ways of treating their students as Origins, and to design the 4 training units implemented in their classrooms. The 4 units were: 1) My Real Self, 2) Stories of Achievement, 3) The Spelling Game, and 4) The Origin-Manual. The training produced highly significant increases in: 1) the use of achievement-words, 2) need for achievement, 3) verbal expressiveness, 4) goal realism, 5) spelling scores, 6) arithmetic scores, and a number of other academic achievement variables not listed here. Experimental children were significantly less tardy than controls and behaved differently in other ways not reported here. Additional data is being analyzed and collected as the training and research continues in its second year.

CAN MOTIVES OF LOW INCOME BLACK CHILDREN BE CHANGED?

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Theory, Ethics and Implementation of Motivational Change in Elementary School Children

Motivation is a fashionable term in educational circles. Teachers often say that certain pupils have no motivation. In a recent attack on jargon and an attempt at cant control, Lawrence Lafore (1968) says: the word "Motivation is chic and tiresome. It is one of those words used as a large umbrella to shelter various phenomena whose nature no one understands. Strictly, it means 'the state of being-provided with a motive,' ...It is often simply a pretentious substitute for ambition, zeal, enthusiasm, or plain interest. The statement 'He has no motivation,' a vague and frightening assertion, can scarcely mean anything more than 'he isn't interested in doing what he ought to be doing.'"

Lafore's interpretation probably captures what the teacher is trying to express. When teachers find their pupils not doing what they ought to be doing, they seek to provide them with a motive for doing it. Unfortunately, many teachers conceive of providing a motive as performing some miraculous arousal technique every morning in the classroom to "turn on" the students. The

implication is that the teacher engages motives by "pulling strings." But pulling strings to make people behave makes puppets and pawns out of them.

We start, therefore, with the basic assumption that students cannot suddenly be provided with a motive from outside, but that the motives within them must be gradually nurtured. Building on this assumption we have worked with teachers and they with their pupils for over a year to produce small, gradual, but lasting changes in motives. We think we have attained a measure of success and can answer "yes" to the question 'Can motives be changed?' We are here to tell you what we did and to report significant changes observed in the thought patterns, motivated behavior, and academic skills of a large group of low income Black Children.

What is a motive?

A motive is by definition, an internal thing, a very personal thing, not something to be turned on by an outside force. Webster says a motive is "that within the individual, rather than without, which incites him to action." Negative motives may be defensive, essentially passive reactions to outside forces, but positive motives are active forces eminating from within the individual aimed at producing changes in his world. Our basic premise is

that man's primary motivation is to be effective in causing changes in his environment. Man strives to be a causal agent, to be the origin of his own behavior; he strives for personal causation (cf. de Charms, 1968).

The Origin-Pawn Concept

When a man feels that he controls his own destiny he thinks and acts in a different way from the way he does when he feels that control of his fate lies outside himself. As Fritz Heider (1958) has pointed out, the locus of causality for behavior may be perceived as internal or external to a person. A person may be seen as the Origin of his own behavior; or he may be seen as having been forced by external demands to act as he does. The distinction is between doing something that he himself chooses to do or doing something that he is forced to do. This distinction is central to the problems of human motivation. For ease of communication we have adopted the terms "Origin" and "Pawn" to designate states of internal and external control.

An Origin is a person who feels that he is in control of his fate; he perceives the locus of causality for his behavior to be internal to himself; in Julian Rotter's (1966) terms he feels internal control over his reinforcements. A Pawn feels that he is pushed around, that someone else pulls the strings and he is

the puppet. He perceives the locus of causality for his behavior as external to himself, he lacks control over his reinforcements. The motivational effects of these two personal states are extremely important. The Origin is positively motivated, optimistic, confident, accepting of challenge. The Pawn is negatively motivated, defensive, irresolute, avoidant of challenge. The Origin feels potent, the Pawn feels powerless.

There are both conceptual and practical difference involved in the distinction between Origins and Pawns. The most important conceptual distinction between these two polar aspects of personal causation depends on how the person feels -- a very personal reaction to his own capabilities. The most important practical aspects distinguishing between the Origin and the Pawn are the actions associated with feelings of potency or powerlessness.

Because we tend to think in terms of cause and effect, we are prone to think that thoughts and feelings lead to behavior --if I think about achievement I will behave in a way that leads to success, if I feel confident I will act confidently. The Power of positive thinking ultimately resides in its results, however, and the concrete results may be either successful or unsuccessful. Results feed back into the person's thoughts and feelings and affect his future confidence. In short, the system

forms a reversible feedback loop where confidence may produce success and success may produce confidence.

Can Motives be Changed?

Having sketched our orientation to what motivation is, we now turn to the question--Can Motives be changed? There is now considerable evidence indicating that the achievement motive, as defined by McClelland's (1969) group, can be increased. A small sleepy town in India named Kakinada has been transformed into a growing business center by a group of researchers who taught the businessmen of the town the achievement syndrome and the entrepreneurial spirit as conceived by McClelland (1961). Similar encouraging results have been obtained in the U.S. with white executives in a rapidly growing company (Aronoff & Litwin, 1968) and with Black businessmen in a ghetto (Massachusetts Achievement Trainers, 1968). Changes have also been obtained with under-achieving high-school boys (Kolb, 1965). We have tried to build on the McClelland procedures and to combine our notion of Origin training with that of achievement motivation training.

Should Motives be Changed?

This brings us to the problem of ethics. The question that inevitably follows a positive answer to the question--Can motives be changed?--is Should motives be changed? There is, we feel,

legitimate skepticism about the value of training all school children to have achievement motivation. The anthropologist, Florence Kluckhohn once said that she felt that achievement motivation training ultimately may make Babbitts out of people and that the entrepreneurial spirit of capitalism inherent in achievement motivation has resulted in some of the most negative aspects of our culture. Such statements may be overdrawn but we can not afford to ignore them.

Apparently, achievement motivation change projects are mainly applicable to business men. For school children a broader conception of motivation is necessary and it is upon the conception of the motivated person as an Origin that we have tried to base our training. We try to treat our teachers and pupils as Origins. It is up to them to choose their goals. Our job is to help them to be realistic and to give them techniques for finding concrete ways of attaining their goals.

We have built our research on the principle that everyone connected with the project should be treated as an Origin. We are committed to the proposition that what we have to offer is valuable, but it is only valuable if the teachers and the pupils can see its value to them and use it in ways that are meaningful to them. We have designed the study to demonstrate empirically

that treating people as Origins increases their feeling of personal worth and personal causation.

This is what we mean by motivational change. The basic ethical problem is to avoid the manipulative change of treating people as Pawns. The exciting prospect is that people - even elementary school children - will change themselves when treated as Origins.

How Can Motives be Changed?

In order to change a person's motivation in a positive way one must help him to feel that he is in control, that he is an Origin not a Pawn. One step in the right direction is to help him to think like an Origin and to feel confidence in himself. But confidence is not enough. The person who lacks confidence has probably had it shattered in the past by failure. It is not enough to teach a person to <u>feel</u> like an Origin, we must learn to teach him to act like one, that is to act in a way that will be successful. If you act in a way that assures attainment of your goal you are acting like an Origin, and success in attaining your goals will produce the feeling of confidence, of control, of personal causation, of <u>being</u> an Origin.

How do you teach a person to act in a way that will be successful? Very briefly you teach him; first, to know his own strengths and weaknesses; second, to choose his goals realistically

taking careful note of his own capabilities and the realities of the situation he is in; third, to determine concrete action that he can do now that will help him to reach his goal; and fourth, to consider how he can tell whether he is approaching his goal, that is, whether his action is having the desired effect. In short, you teach him to think through the behavioral sequence necessary to reach his goal once he has determined that the goal is realistic for him.

Recent research on changing motivation in developing countries such as India indicates that where people apparently lack motivation it is not for lack of lofty goals but for lack of concrete planning and action to attain the goals. A strong but unrealistic drive to attain a goal is not enough. The heart of the motivational problem lies in developing careful choice of realistic goals plus careful planning and concrete action.

Implementation and design of the Project

We have considered the "can" and "should" questions with regard to changing motives and have stressed training for Origin behavior. Now we must ask How we went about it.

We first decided that the best way to proceed was to combine our strength in the theoretical analysis of motivation with the insights of teachers who are the experts on the day to day

practical problems of dealing with children. The project was conceived from the very outset as a cooperative venture between a research team and a school district especially some of the teachers of the district. If your major concern is to treat people as Origins you don't go to the schools and tell the administrators and teachers what to do, thus treating them as Pawns. Close cooperation must be developed so that the project's goals include both research objectives and concrete benefits for the school district, the teachers and pupils individually.

Our major premise made it impossible for us to maintain complete control over the situation. As a result one might assume that it would be impossible to conduct our investigation as a scientific experiment. This was one of the basic challenges: to maintain the integrity of our major premise, to treat individuals as Origins, and at the same time to conduct a field experiment from which we could derive data on treated and untreated samples leading to scientifically based conclusions.

We started with the superintendent of a school district which is almost entirely Black from the superintendent on down.[1]

[1]For the present, while research continues, we will not reveal names of the district, principal, and teachers. Our debt to them is enormous and we hope to give them their well deserved acclaim in the future.

The proposal for the project grew out of an extended discussion with him. Subsequently he was invited to join us in a short motivation change project conducted at Harvard University. After participating in the course he took the responsibility for having the project cleared and accepted by the larger school system of which his district is a part. After the project was funded the design, goals and objectives were discussed with all of the principals of the schools in the district.

The project was designed to be a longitudinal, pretest-post-test, control group design (cf. Campbell and Stanley, 1963). All 5th grade pupils in the district (approximately 1200) were tested in the spring of their 5th grade year. They were tested again a year later near the end of their 6th grade year and will be tested near the end of their 7th grade year, (1969).

The 32 sixth grade teachers in the district were divided equally into experimental and control teachers by a technique called "blocking" (Campbell & Stanley, 1963) where matching the groups on sex and years of teaching experience was used as an adjunct to randomization.

The sixteen experimental teachers were paid to attend a week long residential Origin and achievement motivation training course during their spring vacation. The major sections of the course were designed a) to encourage self-study and evaluation, b) to stress thoughts characteristic of people with high achievement motivation, c) to show the value of careful future planning and moderate goal setting, and d) to promote Origin vs. Pawn behavior. The course was apparently highly successful in spurring the teachers to attempt to infuse these same concepts into their teaching.

During the year following their training the teachers met regularly with the research staff and helped to design 4 classroom units that they then implemented in their classrooms. Nothing was done in the classroom that was not agreed upon in long Sunday afternoon meetings with the teachers who served both as expert consultants and as trainers in their classrooms. The units were designed to enhance the same four training goals mentioned above that were used in the course given to the teachers.

Table I presents in diagramatic form the major elements of the design that we have been talking about.

The design incorporates a battery of motivation and academic achievement measures administered to all children in the district

TABLE I

Design of Testing and Training Units for Longitudinal Study of Motivation Change with Black Elementary School Children

	N	April '67 (5th Grade)	Fall '67 (6th Grade)	Spring '68 (6th Grade)	April '68 (6th Grade)	April '69 (7th Grade)
Experimental Classrooms	9	Battery	Training Units: I. Real Self II. Ach. Stories Pre & Post Self Esteem Pre & Post Wd. Assoc.	Training Units III. Spelling Game IV. Origin Manual Pre & Post CPT	Battery	Battery
Control I Classrooms	6	Battery	Post Self Esteem Post Wd. Assoc.	Post CPT	Battery	Battery
Control II Classrooms	9	Battery			Battery	Battery
Control III Classrooms	7	Battery			Battery	Battery

*Teachers selected using matching as a adjunct to randomization.

**Test Battery consisted of n Achievement measure (Six stories to verbal cues), Verbal & Math Portions of Stanford Achievement Tests, Project developed Spelling and Arithmetic Tests, School Administered Iowa Basic Skills Test Battery.

who were in the 5th grade in spring of 1967. The same measures were administered when these children completed 6th grade and will be administered this Spring when they complete 7th grade. The 9 experimental classrooms participated in the 4 training units and special measures were designed to tap effects of these units and were administered to them in addition to the battery of tests given to all children. Control I classrooms also received the battery plus these special tests but no training. Control II classrooms received only the battery. Control I and II classrooms were in schools other than schools with experimental classrooms, so as to minimize effects of interaction between trained and untrained teachers. Because of arrangements in teaching schedules only 9 of the 16 originally trained teachers actually taught sixth grade during the training year. As a result we were left with Control Classrooms in experimental schools which constitute Control III or what we call contaminated classrooms. We will report here data on the measures obtained after 6th grade comparing experimental and Control I Classrooms only. It should be obvious that this is a report of research in progress. We have much solid data already but much more to analyse and we still have to collect the one year follow-up data.

The Self-Concept of Black Children and Motivational Change

Unit 1

The objectives of our first unit were a) to develop a measure of self-concept applicable to black children and b) to discover if there is a relationship between their self-concept and motivation and academic achievement.

If changes in motives and realistic goal selection are more likely to occur when the setting dramatizes the importance of self-study and lifts it out of the routine of everyday life, as McClelland (1965) proposes, then the entire motivation training course must be placed in the setting of self-analysis.

Our first task was to design a training unit that was capable of involving black, sixth grade, inner city children in examining themselves and their lives. Self-analysis is difficult even for adults, but according to research on children of the inner city, it is particularly difficult for these children because so many of the influences which have shaped their lives have conspired to diminish feelings of human identity and individuality. Where a child consistently experiences feelings of failure, worthlessness, and powerlessness, he learns either to accept these evaluations of

himself or at least to fear that they may be true. He builds strong defenses against any kind of evaluation and often resorts to a sort of "whistling in the dark" technique of claiming loudly and to everyone that, contrary to evidence they may have, he is "the greatest." For many of these youngsters, the family, the school, and the community may have tended to dehumanize them, constantly reminding them of what they should be doing rather than what kinds of persons they are.

The age, sex and cultural heritage of these children are also factors to be considered in the kind of training which might be effective. The students ranged from 10 to 13 years of age in the sixth grade, with the average age about 11 years. Pre-adolescence is not usually a time to expect high interest in introspection. Adolescence, in white America, normally marks the beginning of the quest for identity. Our subjects came from both maturation periods, included both boys and girls, and were almost exclusively black in cultural background.

Were we dealing with subjects whose age, sex, cultural background, and inner city environment had combined to frustrate attempts to develop the ability to evaluate themselves? The question made the challenge of self-evaluation training all the greater.

Our strategy was to engage the children in writing their auto-

biographies over a ten-week period, one chapter a week to be written around a given topic. The title for each child's book was "The Real Me", and the ten chapter topics were chosen after joint consultation of project teachers and staff members. A weekly topic was designated "The Thought for the Week", displayed in large letters in full view of the students on the classroom bulletin board, and was discussed at some time each day either as a scheduled class activity or during spare time between lessons. The following ten "thoughts" were chosen and arranged so that the child moved from the least threatening items to the more sensitive ones. The sequence also progressed from the most projective and open-ended cues to ones more obviously focusing on the type of thinking done by people who seek realistic goals.

My Favorite Daydream	My Greatest Success
If I had Three Wishes	When I'm Discouraged, I.....
The Perfect Family	Why Try?
I'm Different	Failure Teaches Lessons, too.
What Makes Me Angry	The Kind of Person I Want to Be

As a preliminary exercise to impress the students with the complexity of the task of describing themselves, their abilities, and their feelings, each child wrote an essay entitled "Who Am I?". At the end of the ten weeks, each child was again asked to write

a "Who Am I?" essay. It was hoped that the second attempt at this topic would yield a more sensitive report as a result of the ten-week self-exploration experience.

No stress was placed on correct spelling, neatness, legible handwriting, or any of the mechanics of composition. Free expression was the goal.

The autobiographical chapters ranged from several sentences to several pages in length and were kept in private notebooks which the children were encouraged to decorate or embellish in any way the chose. Many added individualistic touches such as self-portraits; drawings or photographs of themselves, their families, their friends, their pets; artistic creations not directly related to the chapter topic; and humorous marginal cartoons and comments.

The children were informed that they were part of a special project and that their teachers and the university staff members would be the only persons other than themselves who would have access to their productions. We promised to respect their privacy and to return each autobiography as promptly as possible.

There is no doubt in our minds that the enthusiasm, encouragement, and inventiveness of the teachers in pursuing this unit and the trust relationship they enjoyed with their students were primarily responsible for the enthusiastic response of the children.

The experimental teachers felt that they knew more about their pupils as individuals in the experimental classes than they had ever known about any of their previous classes. Undoubtedly for many teachers, this knowledge increased their involvement with each child as he coped with matching his abilities with his aspirations.

Before and after "The Real Me" unit, a semantic differential measure of self-esteem was administered to each student in the experimental group. This self-report measure was composed of 12 pairs of qualities. The child rated himself on a six-point scale on each of these 12 pairs. The 12 pairs of qualities used in the self-scoring were:

Friendly-unfriendly	Good-bad
Smart-dumb	Good athlete-poor athlete
Success-failure	Brave-cowardly
Happy-sad	Sharp-dull
Clean-dirty	Good grades-flunking
Honest-dishonest	Strong-weak

On this measure of self-esteem the children, on the average, rated themselves considerably higher than their academic performance or teacher observations could substantiate. Table 1.1 presents mean scores on the Semantic Differential Six-Point Scale Before and After Training. Knowing from data on grade point

TABLE 1.1

Semantic Differential Self-esteem Measure:
Mean Scores on a six-point Scale Before and After Training

Subjects	Before Training	After Training
Males N=114	4.74	4.74
Females N=92	4.81	4.72
Total N=206	4.78	4.73

averages and from standardized achievement test scores that these children are generally performing below grade level, it was obvious that their self-reports on school achievement items were almost totally unrealistic and posed the likelihood that their other self-evaluations were equally unrealistic.

Surely all these children could not realistically rate themselves as almost the highest in the class or in comparison with their other acquaintances! It is also evident that very little change in self-scoring occurred for the experimental group as a whole as the result of the ten-week training unit. An item-by-item check within protocols indicated that the tendency was to rate oneself similarly on all 12 items.

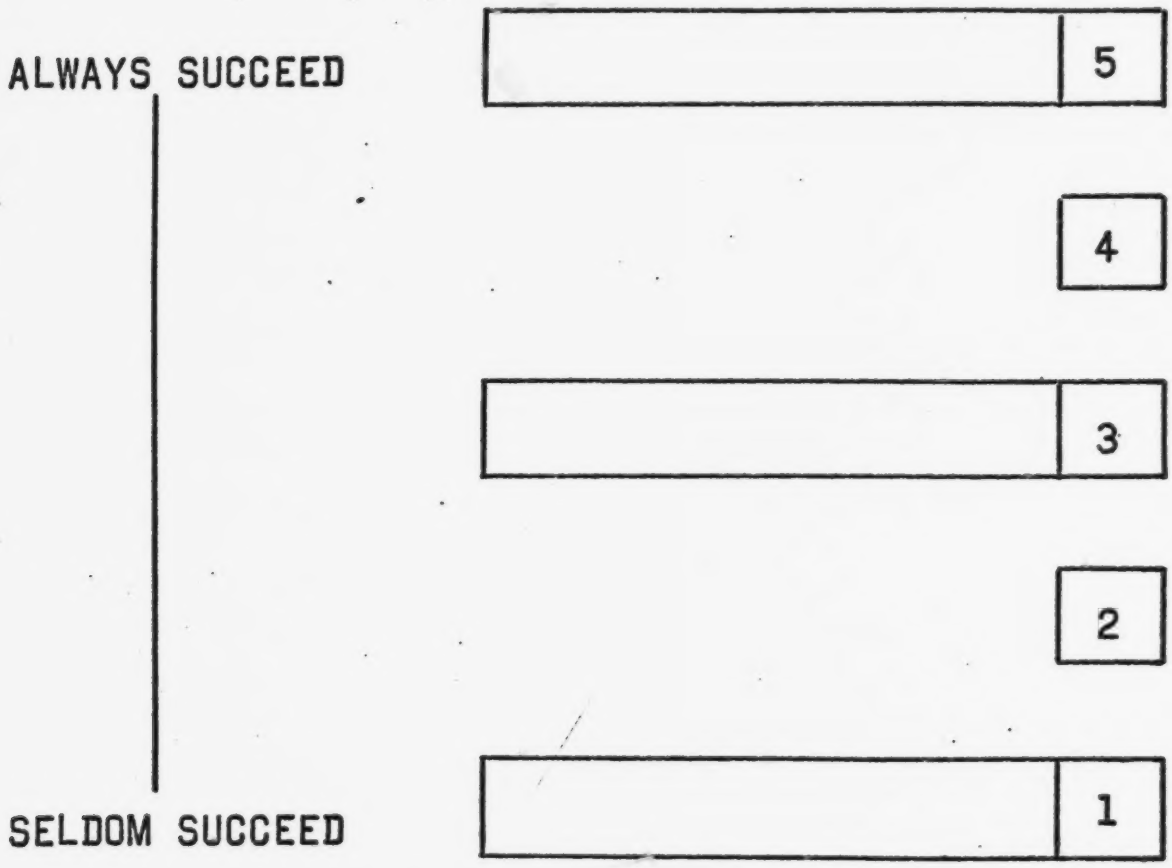
In looking for clues as to how to design a better self-concept measure, we learned from a pre-test that when each child compared himself with specific, known classmates ranked according to his own judgment on a particular quality, the self-ratings did not all cluster at the top of the scale. Also, the average self-scores were lower and varied more widely per item within each protocol. In our revised measure, therefore, not only did the child rate himself on each quality in comparison with his own selection of the highest, lowest, and average children on these qualities, but he was asked to show how he thought his mother, his teacher, and his best friend

would rate him on these 12 qualities in comparison with the classmates he had chosen, assuming that the source or "significant" persons knew the classmates (see specimen from self-concept measure on the next page). We hoped each child would try to see himself as others see him, and we also hoped to learn something about the people from whom these children were learning their self-concepts. We believed that both these additions would increase the sensitivity of our self-rating measure. If we succeeded, the mean self-concept scores should be lower for all children, and the variance within each protocol should increase.

This measure was given as a post measure to all experimental and control children at the end of the motivation and origin training year. Our hypothesis was that the experimental students would reflect a more realistic attitude toward themselves than would the controls (as evidenced by lower mean scores and greater variation within individual protocols) after exposure to all the units in the training program. Table 1.2 presents Mean Scores on a Five-point Scale.

This revised Self-concept measure did show a slight overall lowering of mean scores and did show a wider variation in scores when the children estimated how other people might rate them. The

Specimen Page from the Self Concept Measure.



A. I think I _____.
B. My mother thinks I _____.
C. My teacher thinks I _____.
D. My best friend thinks I _____.

TABLE 1.2

Self-concept Measure:
Mean Scores on a Five-point Scale

Sex	nAch	Control Group	Experimental Group
Males	High	3.52 (N = 14)	3.59 (N = 37)
	Low	3.51 (N = 22)	3.56 (N = 30)
Females	High	3.70 (N = 17)	3.64 (N = 47)
	Low	3.60 (N = 32)	3.54 (N = 28)

hypothesis of a significant difference between experimentals and controls was not supported, however. The means for total controls and total experimentals were identical (3.58). An analysis of the variance among the 12 individual items has not yet been completed.

Using the control group as representative of the student population we were sampling, the males tended to score themselves lower than did the females. There are several possible interpretations which could be made of this finding. a) More realistic male self-concept at this age according to our hypothesis; b) the culturally ascribed position of the male in black subculture in America; c) feeling of powerlessness of the black male in white society. The females without training who score high on need for achievement have the highest self-concept mean scores of all groups, regardless of sex, need for achievement, or treatment.

Looking at the experimental group, however, regardless of high or low need for achievement, there was a slight tendency for all the males to show an increase in mean scores while all the females showed a slight decrease at the end of the entire year of training. The training apparently had some influence in bringing the male and female self-evaluations closer together. Is it possible that the motivation and origin training is having the effect of raising the self-concept of black males, the group most in need of help

according to current sociological studies?

Finally, there are several significant relations between the self-concept scores and academic performance. Table 1.3 presents these findings. For all controls regardless of sex, there are significant correlations with all three mathematics measures, all six verbal measures, and IQ. For the experimental group, however, there are significant correlations only with two mathematics measures and one verbal measure - and even these correlations are much lower than those for the control group in two of the three instances. When the 1967 academic scores are used as the covariate, the control self-concept scores continue to show significant correlations with all mathematics and verbal academic measures while there are no significant correlations for any mathematics or verbal measures for the experimental group. A possible explanation for these low correlations in the experimentals is that the training lowered the variances within the experimental group on the academic measures (as our present analyses seem to indicate) and that it is therefore to be expected that the correlations between their academic scores and self-concept scores might be lowered.

A word should be said about the untapped wealth of material gathered from our experimental children in the form of their autobiographies. Any analysis of the "Real Me" booklets, depends on

TABLE 1.3

Correlations between Self-concept Measure and Academic Achievement Measures

Academic Measures	Experimental Group N = 131	Control Group N = 77
Math.		
Carpenter Arith.	.27**	.30**
Stanford Arith.	.11	.37**
IBS Arith.	.19*	.44**
Verbal		
Carpenter Spell.	.19*	.30**
Stanford Paragraph Meaning	.11	.34**
IBS Vocabulary	.02	.31**
IBS Reading	-.02	.46**
IBS Language	.04	.35**
IQ	.04	.29*

* $p < .05$
** $p < .01$

the development of content analysis scoring systems.

In summary, how can we respond to the two questions we have tried to answer with our training and measuring? First, we must conclude that either no changes took place as the result of our training units or our present measures are not sufficiently sensitive to detect the types of changes which may be occurring. There is a hint of evidence that we may be having a beneficial effect on the black males - the very children who need the most help in setting realistic goals. Second, we know that we do have a self-concept measure which is correlated significantly with academic achievement on both mathematics and verbal tasks.

Achievement Motivation change and the Associative Network*

Unit 2

Unit 2 of our training offered the children an opportunity to learn to think more realistically about goal seeking sequences and to think more like people highly motivated to achieve success in competition with standards of excellence. Before describing this associative network unit we need to say a few words about what we mean by motives, how we measure them, and how we tried to change them in unit 2.

First, what <u>is</u> a motive? We mentioned earlier that motives are the internal causes of behavior. We also think of them as mild obsessions. We say someone has a particular motive when he <u>thinks</u> a lot about a particular class of goals, when he <u>acts</u> to attain those goals and when he <u>feels</u> satisfaction when those goal-seeking acts are successful. When, for example, we learn that a child has been <u>thinking</u> a lot about success in competition with a standard of excellence, when we see him <u>act</u> to compete with such a standard, and when we see how satisfied he <u>feels</u> when he succeeds

*Larry Sondler collected and analyzed a portion of the data reported here, and made valuable editorial comments on this section.

in the competition, then we conclude that he has a strong achievement motive. He is obsessed with achievement.

Technically, we define a motive as a disposition to think, feel, and act in such a way as to attain and enjoy a particular class of incentives. An important characteristic of a motive is that its three aspects (thought, feeling, and action) are linked together by a kind of requiredness (Kohler, 1938). By requiredness we mean a kind of consistency or balance among elements, such that a particular state in one of them is ordinarily accompanied by corresponding states in the others. A child who thinks a lot about achievement, for example, usually acts to achieve and feels satisfied when he does so. This notion of requiredness does not lead to the assumption that thoughts or feelings cause behavior, but it does lead to the empirically justified assumption that we can measure motives by examining thought-patterns and change them by changing thought-patterns.

We measured motives in unit 2 by examining the thought-patterns of the children as they were revealed in a word association test and in short stories. We tried to change the children's motives by changing the way they thought. When an unmotivated child learns to be mildly obsessed with realistic thoughts of success, we believe that he will begin acting in a more successful way.

What kinds of thoughts do successful people have? McClelland, Atkinson, and others have tried to find out by examining their thought-patterns as revealed in the short-stories they write. Nine concepts derived from a behavioral analysis of the striving situation (McClelland et al, 1953) are frequently used by highly motivated and successful people. These concepts appear in short stories in descriptions of how the main characters think about, feel about, and take action to attain, their goals. But unsuccessful and relatively unmotivated people don't usually use as many of those concepts. A highly motivated person, for example, frequently describes the concrete action he'll take to attain a goal, (instrumental activity) where a relatively unmotivated person tends to describe success without much concern for the work it took to achieve it. We think that many successful people comprehensively and realistically think through the goal-seeking sequence by using these 9 concepts.

Our Origin-Pawn notions, especially as they relate to realism, and our assumption about the relationships between thought and action, imply that teaching a child to use these 9 concepts should help him to become a personal cause no matter what his specific motives are. The first training goal of unit 2 was therefore to give the children a chance to learn to conceptualize the goal-seeking sequence in terms of these concepts. We presented

them in the context of achievement-motivation associative network training. We chose to teach the achievement motive because we believed that certain aspects of the achievement syndrome, like taking personal responsibility, realistic goal-setting, careful planning, etc. would help these typically unrealistic children become more successful in attaining their goals. Our second training goal, in unit 2 was therefore to let the children learn the 4 concepts defining the achievement motive. Both goals were implemented by offering the children an opportunity to learn to produce short stories with a lot of achievement imagery. We also encouraged the children to learn a number of achievement-words to increase their achievement-vocabularies.

Some example achievement vocabulary words, and the 4 major- and 9 subcategories defining the achievement motives, appear in Table 2.1. "Achieve", "determined", and "foresight" are examples of the 50 words taught during the first five weeks. "Self-reliance", "afraid" and "cause" are examples of the 40 words employed in training during the second five weeks, and "lose", "wish" and "hope", are examples of a third group of easier achievement words we assumed that most of the children already know.

Competition with self and long term involvement are examples

TABLE 2.1

Example Achievement Words used in Training, and the 13 n Achievement Scoring Categories.

Associative Network Unit 2, Mid December, 1967 · Through Late February to Early March, 1968.

A. Achievement vocabulary word examples:

First five weeks (50 words):	achieve determined foresight
Second five weeks (40 of 50 words):	self-reliance afraid cause
Easy words not used in training but used for word association test:	lose wish hope

B. n Achievement scoring categories:

The four categories differentiating n Achievement from other motives:	Competition with self Competition with others Long term involvement Unique accomplishment
The nine categories n Achievement has in common with other motives:	Need Instrumental activity Hope of success Fear of failure Personal block World block Help Success feelings Failure feelings

of the 4 scoring categories defining the achievement motive. Instrumental activity or concrete action toward goal attainment is one of the 9 scoring categories common to the achievement, affiliation, and power motives. (Incidentally, we found many teachers opposed to stress on competition. But invariably, they objected to exclusive stress on competition with others and were pleased with a redefinition in terms of competition with a self standard.)

Unit 2 was designed to last 10 weeks beginning just before Christmas vacation. At the beginning of each week experimental teachers posted the story instructions and 10 achievement words for the week. As the class went over the meanings of the 10 achievement words they increased their list to 15 words on the basis of suggestions by the children. The children were asked to spend some of their time each day reviewing the achievement words and working out the plot of their weekly essay contest story to be written on Friday. They were encouraged to discuss their story ideas with each other, and with their parents or friends outside the classroom. The children brought pictures from magazines to serve as cues for the story writing session. The teacher selected four pictures each week as cues; but the children were allowed to use their own pictures if they had not been selected as one of the

four. Each Friday the children wrote a story using the two motive categories for the week and as many of the week's achievement words as possible. (Sometimes we were amused to hear that a child wrote a story like this: "A boy is sitting at his desk trying to do something better than he has ever done it before, and actually saying that he wants to succeed, and using the following words - success, hope, effort . . ." that is they simply repeated the instructions.) The children were allowed to write spontaneously without consideration of grammar, spelling, or punctuation. A panel of 3 or 4 judges selected by the class or the teacher each week and changed weekly so that each child would be able to participate, selected the story for the week which was posted in the class and sometimes published in the school newspaper.

The associative network training unit continued for an average of 8 weeks, until each class tired of it. Since we wanted to treat the children as Origins we let each class quit when it got bored with the task.

A word association test to assess the use of achievement words was administered to experimental classes before the training began and after the 5th week, and to experimental and control classes after the 10th week. First words associated to carefully selected and pretested cue words were scored if they fell into one of three

classes. The two 50 word lists from which the words used in training during the first and second five week training periods had been selected, constituted the first two categories and 50 easier achievement words not used in training constituted the third category.

The mean number of words in each category produced in the 1st, 5th, and 10th week word association measure were computed for experimental subjects. The same means are available for controls for the 10th week only. Figure 2.1 indicates that experimentals started somewhat higher on the measure than controls for all three word groups. The effects of the training are most obvious for the first word group as Figure 2.1A indicates. The 5th week test scores for the 50 words used in the first 5 weeks of training were substantially higher than scores for the same words in the 1st week. Scores for these words remained high five weeks later. Figure 2.1B indicates a smaller training effect for the second word group during the second five-week period. Figure 2.1C indicates that the easy words not used in training continued to be used with high frequency through all three tests.

The actual mean number of words produced is very small averaging around one word. To analyse the data we resorted to comparisons of subjects who have more or fewer words after training

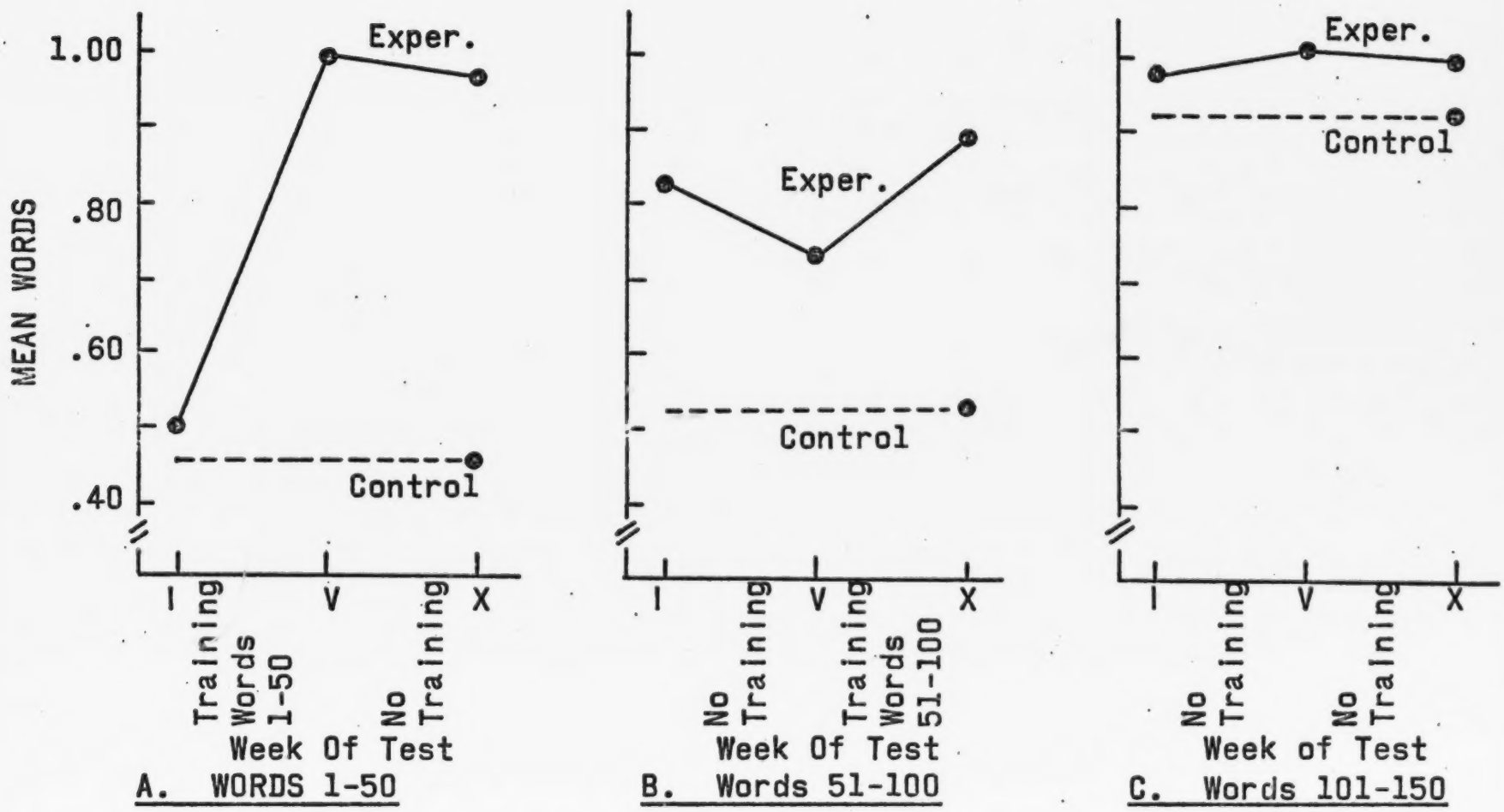


Figure 2.1 Mean Number of Trained Achievement Words Produced on Word Association Test for the Three Word Groups

than before. Table 2.2 presents the percentages of experimental subjects who produced more and fewer achievement words on the word association test on weeks 5 and 10 than they had on weeks 1 and 5.

When the percentages of Ss who increased and decreased in achievement word use as a function of training are compared, the effects show a highly significant difference in favor of increases as a function of training in both training periods. As might be expected, the training on the first 50 words that continued for the full 5 weeks was more effective than the training on the second 50 that was stopped after 3 weeks. In other words, experimental children increased their achievement vocabularies.

The effects of the whole year's training on need for achievement was assessed at the end of the year by the modified thought sampling technique developed by de Charms and Carpenter (1969). Figures 2.2A and B present mean 5th and 6th grade n Achievement scores for males and females. Figure 2.2A indicates that experimental boys scored lower than control boys before training, but reversed the relationship after training, at which time their need for achievement scores exceeded control scores by a healthy margin. Experimental girls scored much higher than control girls before training, but also increased significantly more during the training year than controls (See figure 2.2B).

TABLE 2.2

Percentage of Exparimental Subjects Who Produced More (% +) and fewer (% -) Achievement Words on the Word Association Test.

(Results from Unit II-Associative Network Training)

	Words 1-50 Weeks I-V			Words 51-100 Weeks V-X		
Where Training Intervened	% +	% -	N	% +	% -	N
	41	11.5	200	26	16	192
No Training Intervened	Weeks V-X			Weeks I-V		
	29	29	192	22.5	30	200
$X^2_{(1)}$	18.07			6.89		
$p <$	.001			.01		

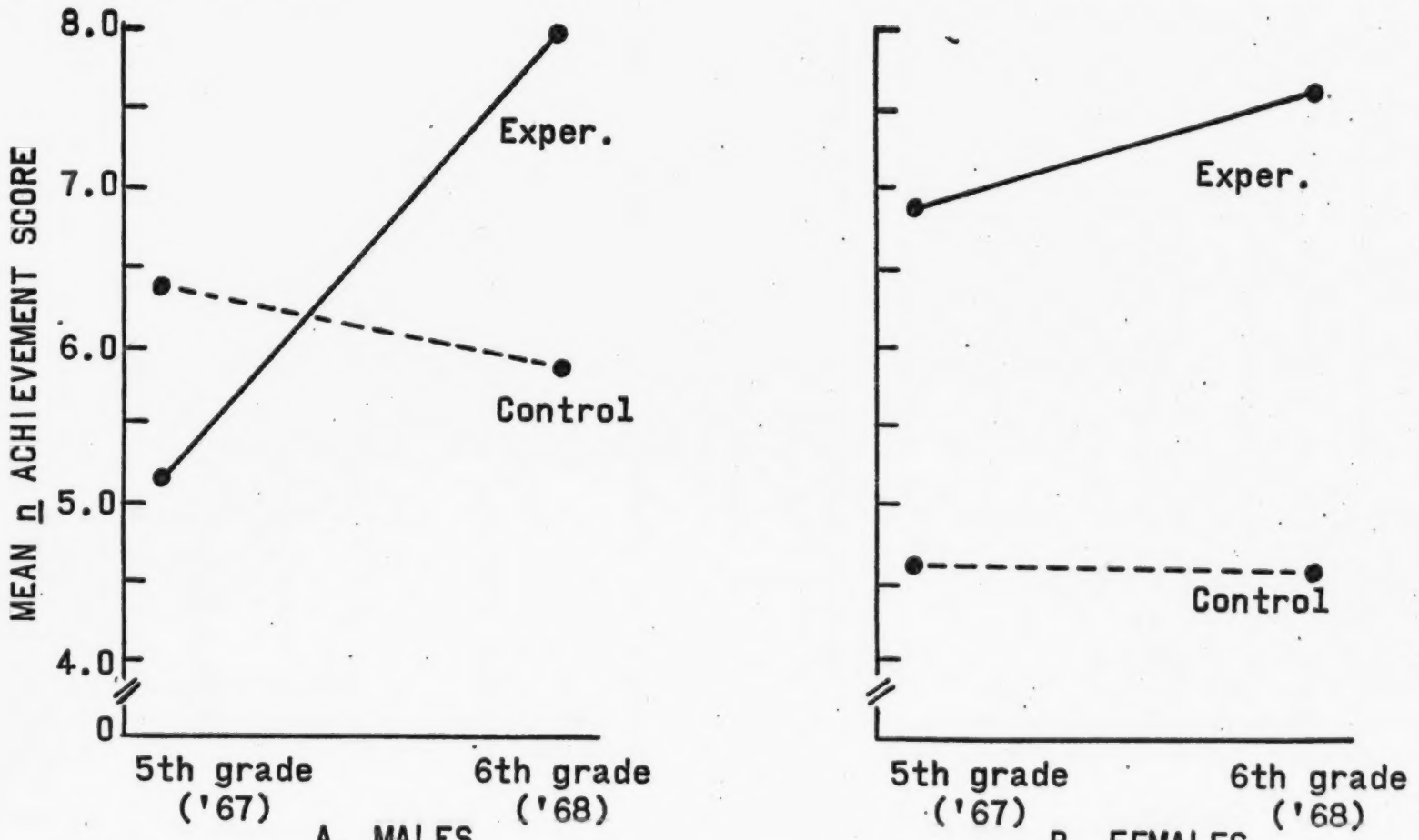


Figure 2.2 Mean 5th ('67) and 6th ('68) grade n Achievement Scores for the Two Sex Groups.

Analysis of covariance was used to control statistically for need for Achievement assessed in '67. Table 2.3 presents mean 5th and 6th grade, and adjusted 6th grade n Achievement scores for experimental males and females. Male scores are generally higher than female scores ($p < .03$) and experimentals are higher than controls ($p < .001$). In other words the training was effective in increasing need for achievement for experimental children during a year when control children decreased in need for achievement.

We found a side benefit of the freedom of expression in the Origin classroom, and of writing practice in the "Real Me" and Associative Network units. As we scored the thought samples we noticed that experimental children wrote longer stories in the time allotted than did control children. Figure 2.3 graphically portrays the dramatic difference in number of words used in year end stories written under time pressure by experimental and control children. The girls are characteristically more verbal than the boys, but the experimental girls are much more verbal than control girls, and experimental males use almost as many words as control girls.

TABLE 2.3

Mean 5th and 6th Grade and Adjusted Mean
6th Grade n Achievement Scores.

	N	5th Grade ('67)	6th Grade ('68)	Adjusted 6th Grade*
Experimentals				
Males	(64)	5.18	7.98	8.06
Females	(68)	6.88	7.66	7.52
Combined	(132)	6.06	7.82	7.79
Controls				
Males	(35)	6.34	5.86	5.79
Females	(42)	4.60	4.57	4.73
Combined	(77)	5.40	5.16	5.21
Combined	(209)	5.81	6.84	6.84

*6th grade ('68) means adjusted by analysis of covariance for 5th grade ('67) means using regression of + .134.

Analysis of co-variance indicates that p of sex difference $< .03$ and p of experimental-control difference $< .001$.

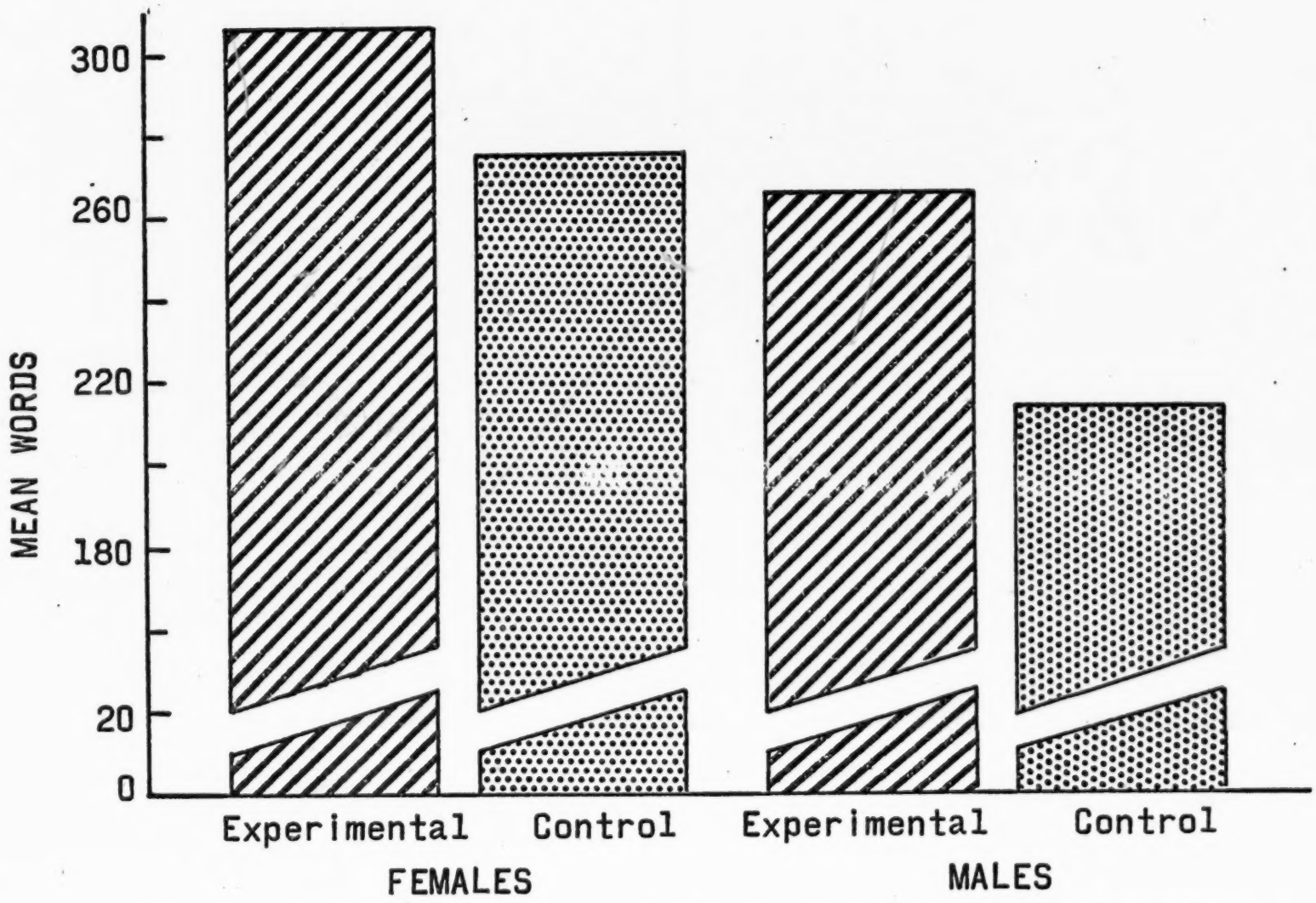


Figure 2.3 Mean Number of Words Used in 6 TAT Stories

Table 2.4 presents mean number of words used in the 6 stories written by experimental and control boys and girls. Girls, to repeat, are higher than boys, and experimentals are higher than controls. Analysis of variance indicates that both differences have a p of $<.001$.

In summary, it is clear from the word association test that unit 2 had an effect. It was also an important component in the year-long training which produced an increase in need for achievement for experimental children. We answer the question, "Can the motives of low income black children be changed?" with a vigorous affirmative.

TABLE 2.4

Mean Words Used in 6 TAT Stories*

	Experimental Subjects	Control Subjects	Total
Males	265.97 (N = 67)	214.70 (N = 36)	248.05
Females	305.04 (N = 75)	263.47 (N = 49)	286.61
Total	286.60	242.81	All Subjects: 270.20

*Analysis of variance indicates that p of experimental-control and male-female differences $< .001$.

The Origin-Pawn Variable and Realistic Aspirations
in Motivational Change

Unit 3: The Spelling Game

One of the major components of what McClelland (1961) calls the "achievement syndrome" is that individuals with high motivation take moderately hard risks, while those with low motivation take either very easy risks or hard "pie in the sky" risks.

We put a great deal of emphasis on risk-taking or goal setting behavior in our teacher training, trying to let the individuals become aware of the way they behave in risk-taking situations. We do this with different kinds of techniques, including games and role-playing.

Soon after the beginning of the experimental year, our staff designed Unit 3, the Spelling Game to help the children understand what it means to take a risk or set a goal. What we did was to modify the traditional spelling bee. This is the way the Spelling Risk-Taking Unit worked.

On Monday of a given week, the teacher gave the children what we called the pretest. That pretest was the test of twenty words that she would normally give at the end of the week, after the class had studied the week's spelling words. On Tuesday and

Wednesday, the children studied those words and the teacher scored the pretests.

On Thursday, the children had a spelling bee. Captains were allowed to choose teams for the contest. Anecdotes from the teachers indicated that at first the teams were chosen on the basis of friendships, but as the weeks went on, the choices became more dependent upon spelling ability.

Each child on each team was given a chance to spell a word. He was, however, given the opportunity to choose the kind of spelling word he wanted. He could choose from one of three levels of difficulty:

Easy words were words that the child himself had spelled correctly on the pretest on Monday. If the child correctly spelled the word again, his team received one point.

Moderately hard words were those that the child had misspelled on Monday, but that he had had the opportunity to study. His team received 2 points if he chose this level of word and spelled it correctly.

Hard words were those that the children had not seen. They were taken from later lists that were labeled "very difficult." His team received 3 points if the child correctly spelled a word from this level.

The team that gained the most points won the spelling bee. Incorrect spellings gained no points for the team, so the children exerted a lot of social pressure on each other to choose words within their ability.

The children and the teachers both enjoyed the spelling unit. We only collected data for the first 5 weeks of the unit, yet some teachers continued to use this exercise throughout the year.

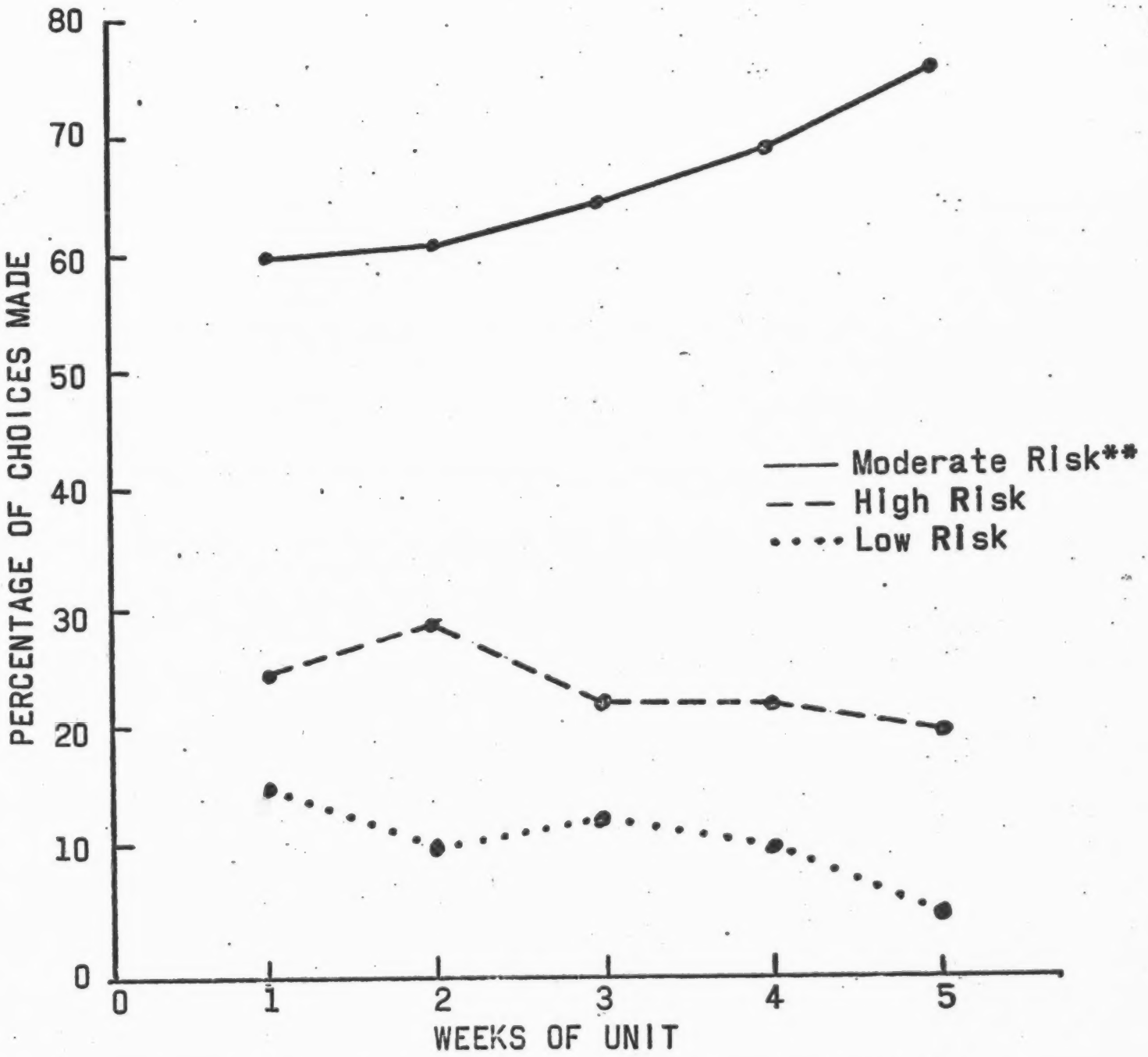
Figure 3.1** illustrates the choices that the children made in each of the five weeks in which we collected data. The figure shows that the moderate risk choice was preferred by the classes from the first week and that as the unit progressed the children increased their percentage of choice at the moderate risk level.

The statistical analysis of the data was accomplished by first transforming the percentage scores by the arcsin transformation. The fit of orthogonal polynomials and the analysis of variance of the data indicate a linear trend (in the moderate level choice) at the .05 level.

These data indicate that unit three was successful in teaching the children to take moderate risks.

** We would like to thank Mr. Jay Noell for his help in collecting the data used in this analysis.

Figure 3.1 Mean percentage of choices made at three levels of risk in experimental classes (n = 9) over period of spelling risk unit.



**ANOVA of moderate risk taking curve indicates a significant ($p < .05$) linear trend. Analysis of data by arcsin transformation of percentages and fit of orthogonal polynomials to (k = 5) weeks.

Unit 4: The Origin Manual

Our fourth unit was constructed as a workbook that had two purposes. The first was to teach the children that they could have control of their fate, that they could do things to improve themselves and change their environment. The second was to train them to act like Origins by setting realistic goals.

The theoretical foundation for the workbook came from several sources. McClelland's and Atkinson's (McClelland, 1961, Atkinson & Feather, 1966) work on risk taking and goal setting convinced us that training the children to set moderate or realistic goals was important if we were to show them that they could be successful in their endeavors. Rotter's (1966) theoretical work and research on the measures of the internal-external locus of control indicate that those who feel that <u>they</u> are in control of their fate tend to set more realistic goals. We used one of Rotter's measures of the potency-powerless dimension in analyzing our results. De Charms' (1968) theoretical and empirical work on the Origin-Pawn variable tied the McClelland, Atkinson, and Rotter work together, and we called the workbook the Origin Manual.

The manual is about 50 pages long, arranged in 25 daily exercises, with about 20 minutes required to complete each one.

The manual was printed and distributed to all the children in the experimental classes. The children were told that the manuals belonged to them and that they could keep any personal information confidential. Parenthetically, this aspect was the part that the children appeared to enjoy most. Interviews with the teachers indicated that the teachers felt uneasy about not knowing what the children were writing.

The major stress throughtout the manual was on personal responsibility. We tried to show the children that if they acted like Origins, if they took responsibility for their behavior rather than waiting for the environment to act upon them, that they could become more successful and enjoy themselves more. Teaching them to set and attempt to attain realistic goals that they wanted would give them the feeling of acting like an Origin and experiencing success. We did not set the goals for the children. We simply tried to show them how to set goals and how to go about reaching them.

McClelland has a paper entitled: "Toward a Theory of Motive Acquisition (1965)." That paper plus Kolb's (1965) planning manual guided the development of the manual. From it we derived a set of words that provided us with a gimmick for the organization of the exercises. The gimmick was the use of these words:

Preparation, Planning, Performance, Practice, Patience, Persistence, Progress, and Perfection. These were the 8 P's of the Origin Manual.

Some of the exercises trained the children to be aware of their abilities and their weaknesses. We tied this part of the manual in with the "Real Me" unit and reminded the students that they must evaluate themselves carefully to see what kinds of goals they have. They learned that they have to prepare themselves and that they had to check their progress (i.e., get feedback) to see how well they were doing.

We placed a lot of emphasis on the planning aspect of the goal-seeking sequence. We trained the children to plan ahead, to think of both long and short range goals, placing special emphasis on the short range ones as steps toward reaching the later ones.

Some of the exercises stressed the fact that there are many obstacles that keep one from reaching goals, and that those obstacles might be due to the children's own deficiencies or to some blocks in the world. We tried to show them that if they had patience, if they persisted, and if they practiced their skills that they could increase their chances of reaching their goals.

The manual pointed out that perfection can be a relative

thing, that one child, although he is doing more poorly than another, may be performing closer to his potential than the other. The stress was on a realistic appraisal of ability. We trained the children to set goals that were moderately hard for them. The emphasis was on improvement, rather than on absolute perfection.

All through the exercises we tried to show the children that if they took personal responsibility for their actions, if they acted like Origins rather than like Pawns, they could be able to be in control of their fate and become successful in their endeavors. Two role-playing exercises, derived from a study by Kuperman (see deCharms, 1968) showed the children how it feels to be treated like Origins and Pawns. In the first of these, the teacher walked into the classroom and passed out a sheet of paper with dots and numbers on the page. Very authoritatively she told the children to sit up straight, fold their hands and follow directions to the letter. Her direction's went something like this: "Pick up your pencil. Put the pencil on dot #1. Connect dot #1 to dot #2. Put down your pencil. Pick up your pencil. Put your pencil on dot #2. Connect dot #2 to dot #3. Put down your pencil. Put your hands on your desk. Sit up straight...."

The teacher continued this exercise until she had directed

the children to complete about 2/3 of their task. She then picked up the papers, slowly ripped them in half, and threw them in the waste basket.

She then said "Children I have just treated you like Pawns. I had complete control over you. I didn't let you have any responsibility..... Now let's talk about how it feels when we're treated like Pawns."

The next day the teacher came in, passed out a piece of paper with dots and numbers, and told the children that it was theirs, that they could do anything they wanted with the picture.

After the children had completed the task she began, "Children, today I treated you 'as Origins. I gave you responsibility..... Now let's talk about what this means."

After this exercise the manual concluded with a review of the program and had the children set a long-range goal using the entire goal-setting sequence. The children signed a contract with themselves, committing each one to his course of action.

The teachers were also active in the Origin Manual unit. They promoted class discussion and described a rationale for the exercises. Some of the teachers worked on a Manual themselves and shared their ideas with the students.

As we mentioned earlier, the children kept their manuals, so we have no data from the actual work in the workbook. Our measure

of the effect of the manual is the students' performance on a goal setting task administered at the end of the school year.

In our battery of tests the children had taken a sixty-item arithmetic test which contained 10 problems at each of 6 levels of difficulty. Level 1 was the easiest and almost all students' solved at least 9 of 10 problems correctly. Difficulty increased up to the 6th level, where very few children solved even 1 problem correctly.

Toward the end of the school year, after the batter of tests had been administered and the arithmetic tests scored, we returned to the schools and individually administered the arithmetic problem solving task to 200 randomly selected experimental and control children.

Each child was presented with his 60-item arithmetic test. He was shown how many problems he had solved correctly at each of the 6 levels of difficulty and he was told his probability of success at each level. The child was then given the opportunity to choose 10 more problems to solve for the task. He could choose easy problems similar to those on the previous test. If he solved such a problem correctly he received a few points. A correct solution at one of the moderately hard levels gained him a medium

number of points. If he solved a problem from one of the very difficult levels, he received a great number of points. The more difficult the problem the more points he received for a correct solution.

The situation was set up so that the child could choose each problem based on two bits of information: first, he knew what difficulty level he chose; second, he knew his own empirical probability of solving that kind of problem.

Before we present the analysis of the results, we must describe one more variable. Prior to the introduction of the Origin Manual, we administered a measure of internal-external locus of control, called the Children's Picture Test (CPT) developed by Battle & Rotter (1963). It is a measure of the potency-powerless dimension. Internals feel more potent; externals more powerless. Previous data on this measure indicate that subjects who score more internal tend to be more moderate or conservative in their risk-taking strategies. Subjects who score more external tend to be more unrealistic and set more risky kinds of goals.

Analyses of the results of the goal-setting task fall into two categories. The first is the decision-making or choice behavior of the subjects. The second is the success of the subjects once they attempted to reach their goals. The following tables present means in the 8 cells of a 2 X 2 X 2 analysis of

covariance design. I.Q. was the covariate.

Table 4.1 presents the results of treatment (that is, experimental vs. control), sex, and score on the CPT measure on the difficulty level chosen. The higher the score in the cell, the more difficult the level of problem chosen. These data indicate that females chose less difficult problems than males ($p < .043$). The means are located on the far right. Subjects who scored internal on the CPT measure tended to be more conservative than externals in their choice of problems ($p < .086$). Means are in the bottom right. The most striking finding is the interaction between the treatment and the CPT score. Those subjects in the control group who scored external chose the most difficult kinds of problems ($p < .002$). The relationship between the CPT measure and goal-setting in the control group only is very similar to that found in previous research. In other words, the internal subjects were more conservative than the externals. That relationship was not the case in the experimental group.

We interpret these data as providing evidence that the training was effective primarily with those who needed it most, i.e., the external subjects who felt powerless prior to the training.

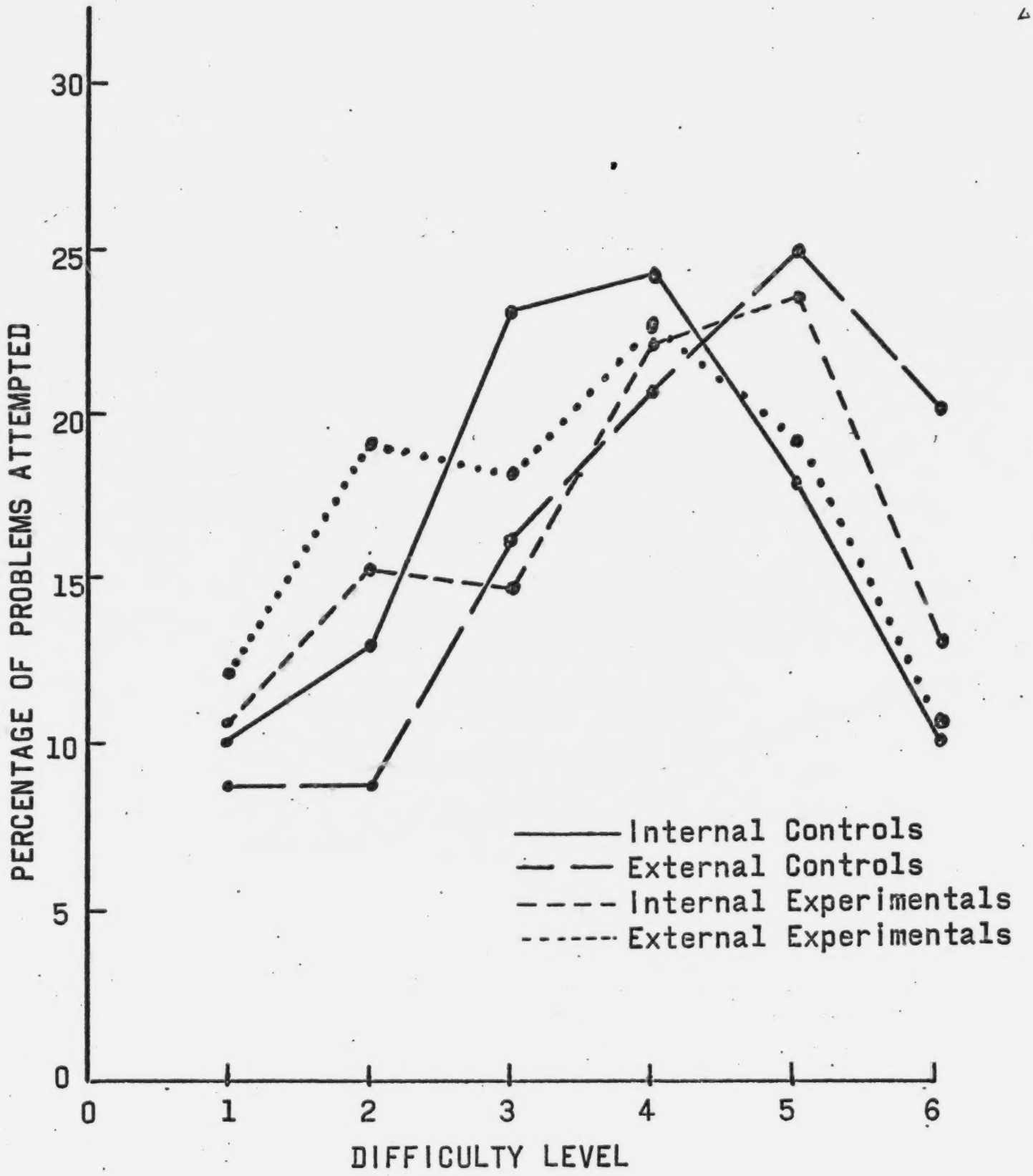
Figure 4.1 illustrates the difference. The internal subjects

TABLE 4.1

Mean Difficulty Level Scores
in Risk Taking Task

	CPT Score	Experimental Subjects	Control Subjects	Total
Males	Internal	3.88 (N = 27)	3.60 (N = 25)	3.75
	External	3.62 (N = 23)	4.34 (N = 25)	4.00
				All Males: 3.87
Females	Internal	3.51 (N = 24)	3.46 (N = 17)	3.49
	External	3.47 (N = 26)	3.84 (N = 33)	3.68
				All Females: 3.60
Both Sexes	Internal	3.71 (N = 51)	3.54 (N = 42)	3.63
	External	3.54 (N = 49)	4.06 (N = 58)	3.82
	Total	3.63	3.84	All Subjects: 3.73

Figure 4.1 Percentage of Problems Attempted at Each Difficulty Level



in the control group chose most of their problems at the moderately hard levels of difficulty. On the other hand, the external controls peak at difficulty level 5 and chose more than 1/5 of their problems at the highest level of difficulty. The experimental subjects, both internal and external, were like the internals in the control group. In other words, they were more conservative.

The control groups data relating the I-E variable and risk-taking is very similar to the data relating n Achievement and risk taking. The internal subjects, like those with high n Ach, chose most of their problems at the moderate levels of difficulty, and the curves tail off at both the low and high levels.

Table 4.2 presents the analysis of the Ss' choice based on their probability of success. The relationships described with difficulty level choice are evident in this analysis again. Girls were more conservative than boys ($p < .021$); internals tend to be more conservative than externals ($p < .066$); and the external subjects in the control group chose the most risky problems ($p < .055$). In the experimental group, the means and variance of internal and external subjects are almost identical.

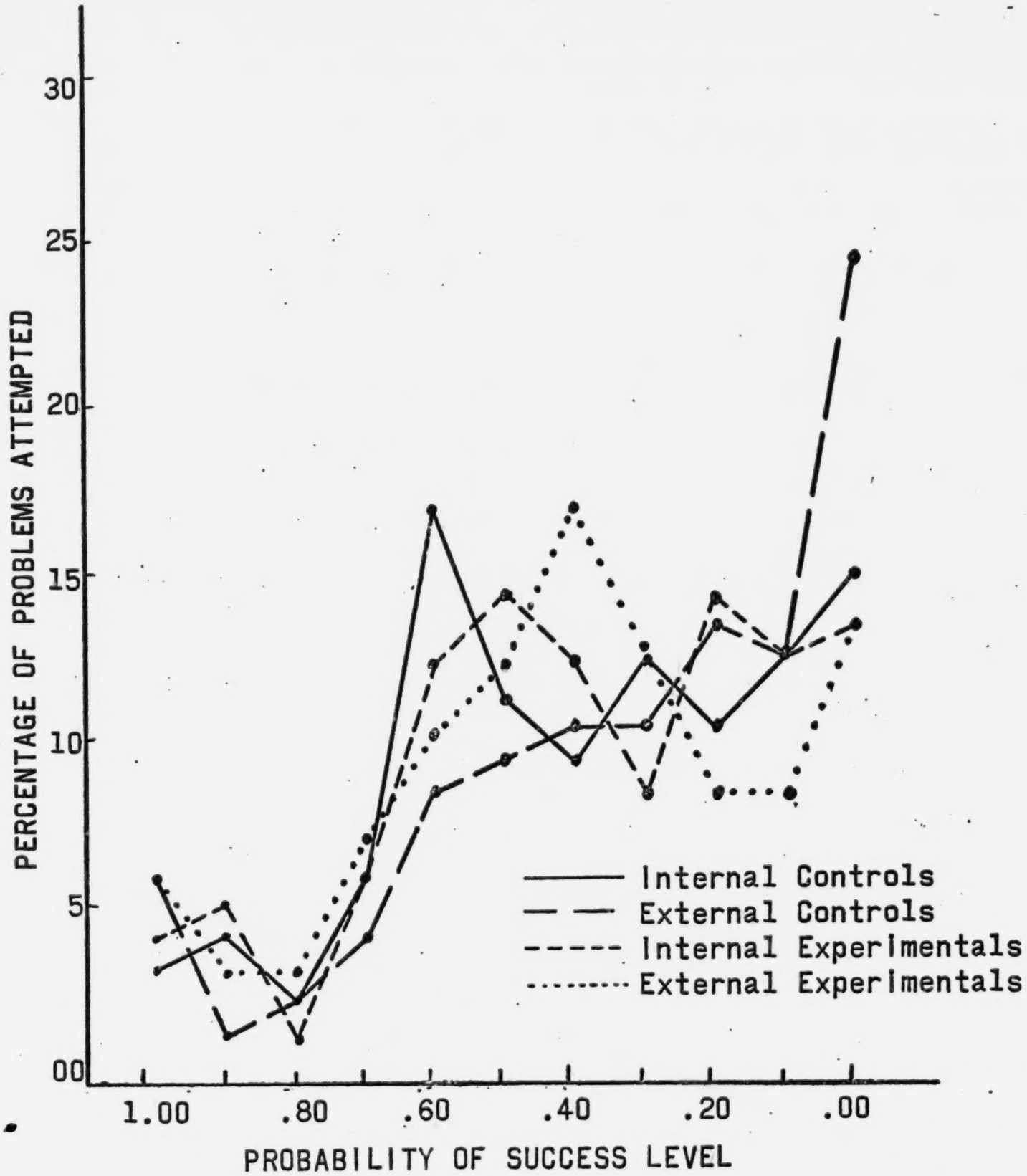
This behavior based on knowledge of one's own probability of success which is illustrated in Figure 4.2 indicates why we have chosen to say that the training has resulted in more realistic

TABLE 4.2

Mean Probability of Success Scores
in Risk Taking Task

	CPT Score	Experimental Subjects	Control Subjects	Total
Males	Internal	.35 (N = 27)	.39 (N = 25)	.37
	External	.35 (N = 23)	.28 (N = 25)	.31
				All Males: .34
Females	Internal	.43 (N = 24)	.39 (N = 17)	.41
	External	.43 (N = 26)	.37 (N = 33)	.40
				All Females: .405
Both Sexes	Internal	.39 (N = 51)	.39 (N = 42)	.39
	External	.39 (N = 49)	.33 (N = 58)	.36
	Total	.39	.36	All Subjects: .375

Figure 4.2 Percentage of Problems Attempted At Each Probability of Success Level .



goal-setting behavior. Figure 4.2 shows that those subjects in the control group who felt powerless (i.e., the externals) chose about 25% of their problems from a level where their empirically determined probability of success was zero. All of the subjects tended to choose problems at a level where their probability of success was less than 50%. To say that the trained subjects behaved more conservatively, then, is to say that they chose problems at a level where their chances of succeeding were closer to 50-50. We would say that this kind of choice behavior is more realistic. Again, it appears that the training was effective with those who needed it most. The external subjects in the experimental group appear to be the ones who changed.

Once the students had chosen their problems, they attempted to solve them. Table 4.3 presents the analysis of the number of problems solved correctly out of 10 in the task. The analysis indicates a tendency for the experimentals as a whole to be more successful than the controls ($p < .084$). The internals were more successful than the externals ($p < .030$). Once again, those external control subjects who had chosen the most difficult problems were least successful in solving them ($p < .004$).

Table 4.4 presents the results of the points won in the task. Again they illustrate that internals were more successful than

TABLE 4.3

Mean Problems Correct
in Risk Taking Task

	CPT Score	Experimental Subjects	Control Subjects	Total
Males	Internal	5.00 (N = 27)	5.44 (N = 25)	5.21
	External	5.13 (N = 23)	3.40 (N = 25)	4.23
				All Males: 4.74
Females	Internal	5.42 (N = 24)	5.24 (N = 17)	5.35
	External	5.54 (N = 26)	4.82 (N = 33)	5.14
				All Females: 5.23
Both Sexes	Internal	5.20 (N = 51)	5.36 (N = 42)	5.27
	External	5.35 (N = 49)	4.21 (N = 58)	4.73
	Total	5.27	4.69	All Subjects: 4.98

TABLE 4.4

Mean Number of Points Won
in Risk Taking Task

	CPT Score	Experimental Subjects	Control Subjects	Total
Males	Internal	200.74 (N = 27)	226.53 (N = 25)	213.14
	External	194.70 (N = 23)	145.56 (N = 25)	169.11
				All Males: 192.01
Females	Internal	193.67 (N = 24)	215.53 (N = 17)	202.73
	External	190.23 (N = 26)	169.52 (N = 33)	178.61
				All Females: 188.50
Both Sexes	Internal	197.41 (N = 51)	222.08 (N = 42)	208.55
	External	192.33 (N = 49)	159.20 (N = 58)	174.37
	Total	194.92	185.61	All Subjects: 190.27

the externals ($p < .044$) and that it was the external control subjects who were least successful ($p < .080$).

In summary, these data seem to provide much evidence for a relationship between how one feels about his power to control a situation and the training we have given the children. Previous data in training indicate that it was those who learned most about motivation that profited most from the training (Lasker, 1966). Our data here show that those who had the most to learn became more realistic in setting goals and more successful in attaining them.

Some Overall Results on School Related Behavior

In this section we shall hit the highlights of data we have concerning three types of problems: a) the effects of the training on general school behavior, b) the effects on standardized academic achievement tests, and finally c) some evidence of our ability to predict academic achievement from other measures.

As to general school behavior we can report that in the fall semester of the experimental year the experimental children were absent significantly less often than the control children ($p < .003$). We checked tardy records also and found that there was a difference here between Experimentals and controls. Table 5.1 shows the percentage of subjects who had more and fewer Tardies in the training year than in the year prior to training. These results indicate that tardies went down significantly for the Experimentals and up significantly for the controls. The comparison of the Experimentals with either a 50-50 probability or with the Controls is highly significant. In short, the Experimentals excell in getting to school on time.

As to academic achievement we have several measures and several types of analyses. It is inappropriate to assume that each child in a class is an individual degree of freedom in analysing for Experimental effects. It is appropriate to make this

TABLE 5.1

Percentage of Subjects with More (% More) and Fewer (% Fewer) Tardies in Training Year than in Year Prior to Training

	Experimental Subjects (N = 206)	Control Subjects (N = 155)
% More	19	39
% Fewer	31	25

Experimental - Control Comparison

$$x^2_{(1)} = 9.95, \; p < .005$$

Experimental Against 50 - 50 Probability

$$x^2_{(1)} = 5.52, \; p < .02$$

assumption in dealing with individual measures as independent variables such as sex differences or level of n Achievement. As a result we have submitted our data to 4 types of analyses, two analyses of variance of post training data,one using pupils as the sampling unit and one using classroom as the sampling unit. A similar technique of two analyses was used in analysis of covariance using pre-experimental scores as the covariate and essentially giving results in terms of change. In the two examples to be presented the experimental vs. control variable is statistically significant in all four analyses.

The actual tables shown come from a 5th analysis of covariance of post scores only using I.Q. as the covariate. We chose these tables because they not only show effects found in the other analyses between Experimental and Controls, but also show sex and n Achievement relationships that are free of I.Q. differences but that are not masked as they would be in the pre-post adjusted means.

Table 5.2 shows mean scores on a project developed 60 item measure of spelling ability. It is representative in showing that the girls surpass the boys ($p < .001$) as they do on all of our measures of language or verbal ability (with the one exception of vocabulary). The high n Achievement subjects have a slight but

TABLE 5.2

Carpenter Spelling Test (60 Words)
Means Adjusted for I.Q.
(Based on Class Means)

	Level of n Achievement	Experimental Classes (N = 9)	Control Classes (N = 6)	Total
Males	High	31.7	28.6	30.5
	Low	30.6	29.4	30.1
				All Males: 30.3
Females	High	33.7	32.7	33.3
	Low	32.7	30.9	32.0
				All Females: 32.7
Both Sexes	High	32.7	30.7	31.9
	Low	31.7	30.2	31.1
	Total	32.2	30.5	All Subjects: 31.5

significant edge on the low n Achievement subjects when the sampling unit is subjects ($p < .03$). Most important for our purposes, of course, the experimentals surpass the controls even under the most stringent analysis ($p < .03$).

We may have effected spelling ability directly, by the spelling risk-taking game, but none of our units dealt with arithmetic ability. Yet our most significant effect appears in Table 5.3 which shows the mean scores on the Arithmetic section of the ITBS. Here the boys excell ($p < .04$) as do the Ss with high n Achievement ($p < .03$). The difference between experimental and control subjects ($p < .001$) constitutes approximately four tenths of a year advantage in average grade placement for the experimental classrooms.

The last bit of data that we have to report is a look at the relative predictive ability of I.Q., n Achievement, Self-Concept, and Goal Realism with respect to mathematical and verbal ability as measured by the academic achievement tests. Table 5.4 presents correlations and partial correlations between these several measures for the control Ss only. In general, we can say that I.Q. fairs best (see Table 5.4 column 1). Our measure of goal realism rates second (see column 4). The goal Realism score constituted the level of mean probability of success chosen by subjects on the

TABLE 5.3

Iowa Basic Skills Arithmetic Test
Grade Placement Means Adjusted for I.Q.
(Based on Class Means)

	Level of Achievement	Experimental Classes (N = 9)	Control Classes (N = 6)	Total
Males	High	65.1	58.5	62.5
	Low	62.1	58.8	60.8
				All Males: 61.7
Females	High	61.8	56.5	59.7
	Low	59.1	58.8	59.0
				All Females: 59.4
Both Sexes	High	63.5	57.5	61.1
	Low	60.6	58.8	59.9
	Total	62.1	58.2	All Subjects: 60.5

TABLE 5.4

Relationships Between 4 Major Predictors
(I.Q., nAch, Self-concept, Goal Realism) and
Math and Verbal Academic Achievement

(Control Ss only)

		I.Q.	6th Gr. nAch	Self Concept	Goal Realism	Partial r's I.Q. (Goal Realism)	Goal Realism (I.Q.)
	6th Gr. nAch	.03	-				
	Self Concept	.29	.04	-			
	Goal Realism	.42	-.02		-		
Males	Math*	.33	-.06	.40	.51	.17	.44
Males	Verbal**	.51	.12	.23	.33	.43	.16
Females	Math	.61	.02	.36	.32	.55	.05
Females	Verbal	.71	.11	.44	.48	.63	.26

* Mean r of Carpenter, Stanford, Iowa Math.
** Mean r of Carpenter Spelling, Stanford Paragraph Meaning, Iowa Reading, Vocabulary, Language.

arithmetic risk-taking measure described in Unit 4. Subjects who chose easier problems in the risk-taking task do better on academic achievement tests. We shall return to this briefly. Self-concept is related to academic achievement (see column 3), but relationships with n Achievement are dissappointingly low (see column 2).

We have pushed the analysis further in the case of goal realism to include partial r's between I.Q., goal realism, and the academic measures. The intriguing finding here is that for boys and math, I.Q. drops to insignificance when goal realism is partialed out, but goal realism still accounts for about 20% of the variance independent of I.Q. (compare the top correlations in columns 5 and 6, Table 5.4). The interesting implication is that this type of measure may give a predictor of academic achievement that is independent of cognitive intellectual skills as measured by I.Q. tests.

Conclusion

In conclusion, we have made a beginning and have evidence that what we did was effective. The question arises what caused the changes. The design of the research reported is only a first step calculated to produce an effect where they are apparently hard to come by. We cannot say exactly which procedure caused what effect,

although analysis of change produced by each unit is beginning to give us some hypotheses that should pay off in future research. For instance, the data indicate that we failed to measure change in self-concept adequately but that we may have, in fact, influenced it and that it is related to school performance. We apparently succeeded in increasing scores on the measure of achievement motivation but in general none of our other measures, such as academic achievement, were strongly related to level of or changes in achievement motivation. The evidence from our goal-setting measures indicate that probably the major effect we had was to teach the children to take more moderate risks. This along with evidence from their written stories not reported here indicates that the experimental children have become more realistic in planning for and setting goals.

These kinds of internal analyses may tell us something about which units within the total context appear more effective. But what about the total context? Was it the units that produced change or was it the orientation given to the teachers? Or was it both? Inevitably the question arises can our data be explained by what is currently known as the Rosenthal effect. That is, have we influenced the expectancies of the experimental teachers with a resulting increase in performance of the children? Have we here

another instance of the effects of teacher expectancies as shown so dramatically by Rosenthal in Pygmalion in the Classroom 1968) ?

We probably do have similar effects but we would reject the implication that our data are simply "explained" by the Rosenthal effect. The mechanism by which teacher expectancies effect pupil performance has not been explained despite Rosenthal's masterful demonstration and several years of intense investigation of the question. Rosenthal says, "We can only speculate as to how teachers brought about intellectual competence simply by expecting it. Teachers may have treated their children in a more pleasant, friendly, and encouraging fashion when they expected greater intellectual gains of them. Such behavior has been shown to improve intellectual performance probably by its favorable effect on pupil motivation." (1968, p. 46).

The quote brings us full circle back to some of the things we said at the outset about our theory of personal causation and treating people as Origins. Our primary aim has been to demonstrate the effects of treating pupils and teachers as Origins. Treating teachers as Origins is an attempt to help them feel and be more effective. As a result they should start out expecting to be more effective. If a teacher's goal is to be effective in changing students she should be committed to this and demonstrate her

personal causation by this means. In short, the very fabric of our theory of personal causation implies that we must first develop a feeling of commitment and positive expectation in the teacher.

We feel, then, that we are dealing with phenomena similar to that found by Rosenthal. Our theory helps us to build on his evidence and predicts that positive expectation is part and parcel of a teacher's feeling that she can be effective. The theory suggests that without that you have nothing and that to try to purge the situation of that would strike at the very heart of what we have tried to do.

As a result of this thinking we feel that our units alone are not enough. We haven't devised 4 units that any teacher can use to increase motivation. This smacks of the "string pulling" puppetry that we have tried to avoid. We predict that training the teachers to treat children as Origins through experiencing such treatment themselves may turn out to be more important than the specific units. Hopefully, we will be able to test that prediction in the near future.

References

Aronoff, J., & Litwin, G.H. (1967). Achievement motivation training and executive advancement. Journal of Applied Science.

Atkinson, J.W. & Feather, N.T. (1966). A theory of achievement motivation. New York: Wiley.

Battle, Esther, & Rotter, J.B. (1963). Children's feelings of personal control as related to social class and ethnic group. Journal of Personality. 31, 482-490.

Campbell, D.T. & Stanley, J.C. (1963). Experimental and quasi-experimental designs for research on teaching. In N.L. Gage, Handbook of Research on Teaching. Chicago: Rand McNally.

De Charms, R. (1968). Personal Causation. New York: Academic Press.

De Charms, R. & Carpenter, V.L. (1969). Measuring motivation in culturally disadvantaged school children. In Klausmeier, H.J. & O'Hearn, G.T., Research and Development toward the Improvement of Education. Madison, Wisc.: Dembar Educational Research Services.

Heider, F. (1958). The psychology of interpersonal relations. New York: Wiley.

Kohler, W. (1938). The place of value in a world of facts. New York: Liveright.

Kolb, D.A. (1965). Achievement motivation training for under-achieving high-school boys. Journal of Personality and Social Psychology. 2, 783-792.

Lafore, L. (1968). Cant Control '68, Swarthmore College Bulletin, December.

Lasker, H.M. (1966). Factors effecting responses to achievement motivation training in India. Unpublished Honors Theses, Harvard College.

McClelland, D.C. & Winter, D.G. (1969). Developing an achieving society. New York: Free Press.

McClelland, D.C. (1961). The achieving society. Princeton, N.J.: Van Nostrand.

McClelland, D.C. (1965). Toward a theory of motive acquisition. American Psychologist. 20, 321-333.

McClelland, D.C. et.al. (1953). The achievement motive. New York: Appleton-Century-Crofts.

Rosenthal, R. & Jacobson, L. (1968). Pygmalion in the class-room. New York: Holt, Rinehart & Winston.

Rotter, J.B. (1966). Generalized expectancies for internal versus external control of reinforcement. Psychological Monographs. 80.